

Train-the-Trainer Program

# Liberty® Cyclor

## QUICK TIPS FOR NURSES



**Liberty**®  
united with stay-safe®

For versions 2.8.2 and higher

**Indications for Use:** The Liberty cyclor is intended for acute and chronic peritoneal dialysis. The stay-safe patient connector is intended for use with a peritoneal cyclor for drainage and infusion of PD solution during peritoneal dialysis exchanges. The stay-safe patient connector is indicated for acute and chronic peritoneal dialysis.

**Caution:** Federal (US) law restricts these devices to sale by or on the order of a physician.

**Note:** Read the Instructions for Use for safe and proper use of these devices. For a complete description of hazards, contraindications, side effects and precautions, see full package labeling at [www.fmcna.com](http://www.fmcna.com).

# Liberty Cyclor Quick Tips for Nurses

These quick tips are intended to support peritoneal dialysis (PD) nurses and clinical support personnel in their efforts to train PD patients on how to use the Liberty cyclor, related disposables, and solution bags. Please refer to the Liberty Cyclor User's Guide for more detailed information.

As with any new piece of equipment, practice makes perfect. Think about a new electronic device you recently purchased and the time it required to master it. Similarly, the Liberty cyclor requires a period of transition for the patient to get used to it, particularly if they are familiar with a different cyclor.

To help your patients transition, have them simulate treatments as they would be administered at home. This means having them do multiple treatments at the facility while lying down in a bed or reclining in a chair. The quick tips included here may be helpful in decreasing or preventing some of the issues most commonly identified with patients new to the Liberty cyclor.

Below is a brief overview of some of the Liberty cyclor's features and parts. For more information, see the Liberty Cyclor User's Guide.

**Status Bar.** The status bar is a colored bar located at the top of the cyclor touchscreen.

The status bar helps guide the user through their treatment by displaying various messages, warnings, alarms, and the time and date. During treatment, the background color of the status bar changes, indicating the status of the machine, and prompting the user to take action, if any is needed. The status bar has five different colors, each representing a different condition:

Blue	You must interact with the machine following prompts to advance the treatment or resolve a support screen message.
Green	When your machine is performing an action such as fill, flush, prime, pause, dwell, or drain, the background changes to green.
Yellow	The background changes to yellow whenever you press the STOP key during an action (see Green).
Orange	Orange warnings need your immediate attention. During a warning, the status bar background changes to orange, the screen buttons are unavailable, all actions stop, and an audible alarm sounds. Press the STOP key to silence the alarm.
Red	A red status bar indicates a critical fault in your machine. All actions stop, the screen buttons are unavailable, and an audible alarm sounds. If the status bar changes to red, the screen will display an error code and instructions to call Technical Support at (800) 227-2572. (Technical Support is available 24 hours a day, 365 days a year.)

**Heater Tray.** Located on top of the cyclor, the heater tray warms and weighs a solution bag when placed on the tray during setup. This solution bag is referred to as the heater bag, and is connected to the line with a red clamp during treatment. The small metal disk on the tray is the bag sensor. To ensure that the scale operates properly:

- Lift the cyclor using the side handles **ONLY**; never lift using the heater tray.
- Place the cyclor on a flat surface such as the optional Liberty cart or a bedside table.
- **Make sure that the heater tray is not obstructed or touching any surface to avoid a scale error.**
- **Place only the heater bag with the red clamp on the heater tray. Do not place any other bags on the tray at any time.**
- Make sure that the heater bag has at least 1000 mL more solution than the programmed fill volume to allow for flushing and priming.



Some other cyclors do not utilize the heater tray as a scale. This is important to know because any additional weight (extra solution bags, leaning over and touching the scale, etc.) can cause a warning alarm. The heater bag should not be placed on the heater tray/scale until prompted to do so.

**Solution Temperature.** Fill 1 will not automatically occur until the PD solution is adequately warmed. If setup and Drain 0 take less than 20 minutes to complete, the solution in the heater bag may not have reached 91.4°F/33°C in time for Fill 1 to start automatically. If the heater bag solution temperature is at least 77°F/25°C, the screen will display, "Press OK key to start fill". By pressing the OK key, the fill will start at this lower temperature. If the patient does NOT press OK, the heater bag will continue to warm to 91.4°F/33°C before automatically starting the fill.

**Cyclor Placement.** The cyclor needs to be on a flat surface. Use the optional Liberty cart or a bedside table with sufficient heater tray clearance and within a range  $\pm 12$  inches above or below the bed height. To avoid kinked lines or cassettes popping out, be sure to place the cyclor at the front edge of a table. **If using a cart, place the tubing between the handle and the Liberty cyclor, allowing the lines to hang free.**

**Liberty Cassette.** To insert, open the cassette door when prompted by pressing the latch on top of the door. Insert the top portion of the cassette first by sliding it under the cassette guide pins. Then, snap the lower portion of the cassette into place. Make sure the lines hang straight, as pictured in Figure 1. Close the door securely.

**Caution:** the cassette portion of the Liberty cyclor set must be handled carefully to maintain the integrity of the flexible film backing.

**Warning:** Using a damaged cassette can result in contamination of the PD solution that can lead to peritonitis.

**Reminder:** Report, save and return any damaged cassette.

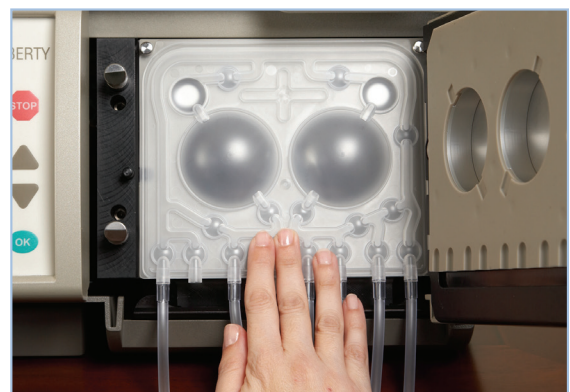


Figure 1. Proper insertion of cassette

**stay•safe®.** Carefully insert the stay•safe PIN connector into the stay•safe organizer. To do this, place the stay•safe PIN connector at the end of the blue patient line into the organizer by inserting the stay•safe PIN connector into the slot with a line pointing upward. **Use care not to twist or push the stay•safe PIN connector, as this could prematurely release the PIN.** (See Figure 2.) Rotate the tubing so that the line is secured into the tubing channel.

After connecting to the catheter extension set, remind the patient to remove the stay•safe PIN connector from the stay•safe organizer to allow more freedom for movement.



Figure 2. Inserting the stay•safe PIN connector into the organizer

**Treatment Modes.** The cyclor has a **Treatment Based** mode and a **Cycle Based** mode to accommodate patients' various scheduling and treatment needs.

**Treatment Based** mode provides treatment within a relatively **fixed amount of time** and is useful for patients with specific scheduling needs, such as those who require treatment to end by a certain time. Although treatment time in this mode is generally fixed, if the last drain or fill requires more time than estimated, treatment time can still be extended. Also, it may be necessary to extend treatment time when Last Bag Option is selected, and the last dwell time is relatively short. When this occurs, the heater bag must be completely emptied, refilled, and heated to an acceptable temperature during the last dwell to start the last fill.

Select **Cycle Based** mode to have the cyclor deliver a relatively **fixed dwell** period to maintain treatment effectiveness. In this mode, the programmed dwell time is the **MINIMUM** amount of time that solution will remain in dwelling during each timed (overnight) cycle. Therefore, if more time is required to fill and/or drain, therapy will be extended. The total treatment time for Cycle Based mode may vary from day to day.

**Drain Time.** In Cycle Based mode only, the drain time minimum is hard set to 20 minutes, based on a flow rate of 100 mL/min. Drain time can be increased at any time or if the fill volume increases. If the drain is faster than 20 minutes, the cyclor will proceed to fill. Unused time will be added to the dwell.



For example, if the fill volume is 2000 mL ( $2000/100=20$  min), 2.5 L=25 min, 3L=30 min, etc. These are approximations, and drain times should be carefully monitored daily once the patient is at home to prevent unnecessary alarms. See My Records for the actual times, and adjust accordingly.

**Daytime Dwell.** To include the daytime dwell total/net UF, set Add Diurnal UF to YES. This will add the UF from the initial Drain 0 volume to the total UF displayed and recorded. Set to NO, it will not add the UF from the initial drain volume to the total/net UF. However, the initial drain volume is still recorded and displayed in the My Records screen and the IQdrive™ when the add diurnal UF is set to NO.

**Daytime Manual Exchange.** If you performed a manual exchange since you last turned off your cyclor, set the Daytime Exchange button to YES when prompted during the setup. **If programmed to YES, the cyclor will prompt you to enter the fill volume of the manual exchange. This allows the cyclor to adjust the expected drain volume in Drain 0 and base the volume requirement on the actual volume present.**

**Drain Logic.** The minimum volume requirement is 70% for all drains except Drain 0. This applies to both Treatment and Cycle Based modes.



The cyclor will continue to drain the patient as long as it detects an active flow of at least 30 mL/min. The cyclor will only end the drain when the drain exit criteria are met and both the “cannot drain condition” and overflow check are satisfied. The cyclor will not end a drain simply because 70% alone has been met. The volume requirement for Drain 0 is unique and does not have the same, fixed 70% exit criteria as the other drains. The volume requirement for Drain 0 is an overflow check. A specific percentage (%) as a volume requirement does not apply to Drain 0, beyond the initial requirement of having to drain 70% of 50 mL. In other words, there is a 35 mL drain volume requirement for Drain 0, as a check to verify the patient extension set and/or blue patient line is open at the beginning of the drain.

The volume threshold for the overflow check is greater than 150% of the programmed fill volume, i.e., programmed fill volume of 2000 mL x 1.5 = 3000 mL. If, by ending Drain 0, and completing Fill 1, the volume will exceed 150% of the programmed fill volume, the cyclor will not allow Drain 0 to end, as this would exceed the overflow check.

If the cyclor is no longer getting an active flow and suspects the patient is done draining, it will confirm that the exit criteria for the drain is met. In addition, the “cannot drain condition” must be met, which is either the flow rate in drain has dropped below 30 mL/min for five consecutive minutes OR the volume in two chambers is less than 1.5 mL x four consecutive strokes.

**Note:** For version 2.8.4 cyclors, if condition (b) is met, the pump will stop for 30 seconds to allow the tip of the catheter to float away from any occlusion. After 30 seconds, the pump will restart. This will be repeated three (3) times before exiting the drain. This now extends the time to allow the cyclor a more complete assessment of the end of the drain cycle.

The patient’s flow rate in drain has to significantly slow down or stop, and if so, will end the drain and move to fill as long as the above criteria and overflow check is satisfied.

**Remember, as long as the cyclor maintains an unobstructed active flow greater than 30 mL/min, it will continue to drain, even if the time for the drain cycle has elapsed.**

**Stopping or Bypassing.** For various reasons, the patient may find it necessary to stop therapy or bypass a phase of therapy. Patients must be made aware that doing so may reduce the amount of treatment received. Stopping or bypassing should be done only when absolutely necessary.



Drain 0 may be bypassed at any time, therefore patients **MUST** be taught **NOT** to bypass until they are completely drained or have a dry day. Bypassing during other drains will be prevented by the cyclor if a potential overflow situation is detected.

**Stopping Treatment.** Should it become necessary, the following steps will enable the patient to stop their treatment:

1. Press the STOP key next to the touchscreen. The status bar will turn from green to yellow. "Press OK to continue" will be displayed across the bottom of the screen and the "STAT drain box" on the right hand side of the screen.
2. To resume therapy, press the OK key as directed. An audible alarm will sound if treatment is not resumed within 10 minutes.
3. To utilize the STAT drain option, see the box below:



Press STAT drain button on right side of screen. Confirm the decision to use STAT drain when prompted. A STAT drain may be performed anytime during fill, pause or dwell. This will initiate an immediate drain cycle and some dwell time may be lost when used.



Note: Disconnection during treatment interruption is not advised. However, if it becomes necessary to disconnect, the set in use must have a second unused sterile stay•safe PIN connector available to resume treatment. After safely disconnecting, using PIN technology, and attaching a sterile cap to the extension set, prepare and insert the next sterile stay•safe PIN connector, so it is ready for reconnection later. If this is not done, there is a chance the patient could attempt to connect to the used stay•safe PIN connector. This same procedure should also be followed when a patient performs a Pause exchange.

**Bypassing During a Treatment.** If a patient finds it necessary to bypass any phase of their treatment, the following steps will end the phase in progress and enable therapy to move to the next phase, if it is safe to do so:

1. Press and hold the OK key for four seconds.
2. If treatment is at a point that bypass can be safely allowed, the status bar will turn from green to blue and the screen will display “bypass current phase”. You must touch this box on the screen for bypass to occur.
3. The screen will display “bypass not allowed” at the following points during therapy (there are no bypass restrictions in Drain 0):
  - a. In drain, if the patient has not drained enough and overflow can occur after the next fill.
  - b. In dwell, for first few minutes of dwell when the heater bag is being emptied or refilled or if the solution in the heater bag has not reached 25°C.
  - c. In pause, the patient cannot bypass, but must wait for the next button to appear in order to continue to next phase.
  - d. However, in fill, the patient may bypass at anytime.

**Note:** Inform patients NOT to push any buttons or keys if an unwanted option to bypass is presented. Treatment will resume after a few seconds if no buttons or keys are pushed.

**Warnings and Alarms.** The Liberty cyclor continuously monitors treatment. If problems are detected, the cyclor’s normal operation is interrupted and the color of the status bar will change from green (treatment in progress) to orange if a warning is posted or red if an alarm condition is detected. The main screen will display a message identifying the problem as well as the error code assigned to the problem, such as **M65**. An audible alarm will also sound and may be muted by pressing the STOP key.

- Some warning messages may resolve after pressing the OK key, when the screen prompts “Press OK to retry”. This may be tried three times prior to reaching out for assistance. If not able to resolve the warning, the user should contact Technical Support at (800) 227-2572. The warning code should be noted before calling, as this information will be needed to provide appropriate instructions and support.
- Red alarms require that the user contact Technical Support. The alarm code should be noted before calling, as this information will be needed to provide appropriate instructions and support.

The patient should be trained to make note of any information presented, including the type of warning or alarm. Certain warnings or alarms may indicate specific action. For example, if the temperature of the heater bag is too high, the patient may be advised to move the cyclor away from a heater, turn off the cyclor for a brief period, or discontinue therapy. If the issue causing the warning is resolved by the patient’s response, therapy will resume. If not, call Technical Support at (800) 227-2572 to assist in troubleshooting the problem.



**Treatment Support Screens.** Color will change from green to blue if a treatment support condition is detected. An audible alarm will sound and may be muted by pressing the STOP key. The main screen will display a message identifying the problem, along with troubleshooting tips for the user.

The following options might be considered to prevent or resolve drain issues, fill complications, solution bag problems and others:

- **Look for kinked or clamped extension set, patient line or drain line; straighten these lines and open clamps.**
- **Secure catheter and drain lines in place to prevent kinking, such as by looping the tubing on the bed to help prevent kinking near the connection to the patient's extension set.**
- **Change body position; roll over, sit or stand up, etc.**
- **Make sure the cyclor is positioned  $\pm 12$  inches from bed height.**
- **Make sure that enough solution is connected to deliver the prescribed therapy.**
- **Be sure cones are completely broken and not obstructing flow.**
- **Be sure blue PIN in stay-safe PIN connector is not pushed in prematurely, blocking flow.**

For drain complications, please refer to PD Drain Problem Solving Guide (P/N 101214-02).

- If the screen says "Press OK to retry", the patient may press OK three times to try to clear the alarm.

**Note:** During training, please teach your patients about the clinic's policy for when to contact the on-call PD RN and when to call Technical Support. Instructions should be given in the event that the cyclor needs to re-setup during the night, as recommended by our technicians.







Fresenius Renal Technologies, a division of Fresenius Medical Care North America  
920 Winter Street • Waltham, MA 02451 • 1-800-662-1237